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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/646,617	NARAYANAN ET AL.	
	Examiner	**Art Unit**	
	IAN N. MOORE	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _01 April 2008_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-33_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-33_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _4/1/08_.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 17-32 are objected to because of the following informalities:

Claim 17 recites the clause with the optional language “operable to” in line 2. In order to present the claim in a better form and to describe a positive or require steps/function to be performing (i.e. using the claim language that does not suggest or make optionally but required steps to be performed), applicant is suggested to revise the claim language such that the steps/functions, which follows “operable to”, to be performed are required (not optional).

Claims 18-32 are also objected since they are depended upon objected claim 17 as set forth above.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "**the** number of **packets**" in line 6 and 8, and "**a request packet**" in line 3. It is unclear whether “the number of packets” refers to the number of "**<u>request</u> packet**" or regular "**packet**".

Claims 17 and 33 are also rejected for the same reason as set forth above in claim 1.

Claims 2-16 and 18-32 are also rejected since they are depended upon objected claims 1 and 17 as set forth above.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4, 17-20, and 33 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,2,4-6,19,20,22-24,35,36,39 and 40 of copending Application No. 10/642,042 (hereinafter refers to Narayana) in view of Barach (US007289441B1).

Regarding Claim 1 of the instant application, Narayana discloses a method for managing connections in a network comprising (see, claim 1, line 1-2, claim 36, line 1-2):

receiving a packet for establishing a protocol-based connection (see, claim 1, line 3, claim 36, line 3);

assigning the packet to a selected one of a plurality of classes (see claim 1, line 4-5, claim 36, line 4-5);

forwarding the packet if the number of packets forwarded from the selected class in a predetermined time interval has not reached a first maximum count (see claim 1, line 6-9, claim 36, line 8-10); and

dropping the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see claim 1, lines 11-12, claim 36, line 11-12).

Narayana does not explicitly disclose “a request packet” and “a protocol of the requested connection”.

However, Barach discloses a method for managing connections (see FIG. 1, 2, methods FIG. 6, Intermediate network node 200 processing/performing the steps/method controlling/managing routing/forwarding connections/sessions) in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

receiving a request packet associated for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45);

forwarding the request packet if number of packets forwarded from the selected class in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67); and

dropping the packet if number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a request packet” and “a protocol of the requested connection” as taught by Barach in the system of Narayana, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 2 of the instant application, Narayana discloses wherein the first maximum count is adjustable to effectuate different rates of packet forwarding for the selected class (see claim 6).

Regarding Claim 3 of the instant application, Narayana discloses wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see claim 2 and 4).

Regarding Claim 4 of the instant application, Narayana discloses wherein a counter associated with the selected class is used to determine whether number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see claim 1 and 5).

Regarding Claim 17 of the instant application, Narayana discloses an apparatus for managing connections in a network comprising (see claim 19, line 1-2, claim 39, line 1-2):

a control plane operable to process requests for protocol-based connection (see claim 19, line 15-17); and

a data plane operative to receive a packet associated with a request for a protocol-based connection (see claim 19, line 4-6, claim 19, line 3),

assign the packet to a selected one of a plurality of classes (see claim 19, line 6-7, claim 39, line 5-7),

forward the packet to the control plane if the number of packets forwarded from the selected class in a predetermined time interval has not reached a first maximum count (see claim 19, line 9-11, claim 39, line 12-14), and

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see Narayana claim 19, line 12-14, claim 39).

Narayana does not explicitly disclose “a request packet” and “a protocol of the requested connection”.

However, Barach discloses an apparatus (see FIG. 1, 2, Intermediate network node 200) for managing connections in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

a control plane (see FIG. 2, a control plane includes entities used to manage/control operation of the node (e.g. a combined system of logic 220, route processor 270, RP module 260, system controller 280)) operative to process requests for protocol-based connection (see FIG. 2, processes requests (i.e. PPPoE Active Discovery Initiation (PADI) and Incoming Call Request (ICRQ)) for routing/forwarding for PPPoE/L2TP protocol based connection; see col. 2, line 4-24; see col. 5, line 29-64; see col. 6, line 20-30); and

a data plane (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) operative to:

receive a request packet for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45),

forward the request packet to the control plane (see FIG. 2, forward PADI/ICRQ request packet/PDU to the control plane; see FIG. 6, Step 630, 640) to if the number of packets forwarded in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67);

drop the packet if the number of packets forwarded in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "a request packet" and "a protocol of the requested connection" as taught by Barach in the system of Narayana, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 18 of the instant application, Narayana discloses wherein the first maximum count is adjustable to effectuate different rates of packet forwarding for the selected class (see claim 24).

Regarding Claim 19 of the instant application, Narayana discloses wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see claim 20 and 22).

Regarding Claim 20 of the instant application, Narayana discloses wherein a counter associated with the selected class is used to determine whether number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see claim 19 and 23).

Regarding Claim 33 of the instant application, Narayana discloses a system for managing connections in a network (see claim 35 and 40) comprising:

means for receiving a packet associated with a request for a protocol-based connection (see Narayana claim 35 and 40);

means for assigning the packet to a selected one of a plurality of classes (see Narayana claim 35 and 40);

means for forwarding the packet if the number of packets forwarded from the selected class in a predetermined time interval has not reached a first maximum count (see Narayana claim 35 and 40); and

means for dropping the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see Narayana claim 35 and 40).

Narayana does not explicitly disclose "a request packet" and "a protocol of the requested connection".

Barach discloses a system (see FIG. 1, 2, Intermediate network node 200) for managing connections in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

means for receiving (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) a request packet associated for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45);

means for forwarding (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) the request packet if number of packets forwarded from the selected class in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67); and

means for dropping (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) the packet if number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "a request packet" and "a protocol of the requested connection" as taught by Barach in the system of Narayana, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 1, 17, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barach (US007289441B1) in view of Archilles (US006977894B1).

Regarding Claim 1, Barach discloses a method for managing connections (see FIG. 1, 2, methods FIG. 6, Intermediate network node 200 processing/performing the steps/method controlling/managing routing/forwarding connections/sessions) in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

receiving a request packet associated for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45);

forwarding the request packet if number of packets forwarded from the selected class in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67); and

dropping the packet if number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Barach does not explicitly disclose “assign the packet to a selected one of a plurality of classes” and “forwarded from the selected class".

However, Archilles discloses receiving a packet for establishing a protocol-based connection (see FIG. 1, receiving packet that request for routing/forwarding for L3 connection; see col. 3, line 1-30),

assigning the packet to a selected one of a plurality of classes based upon a protocol of the request (see FIG. 1, classifying each packet to one internal service classes (ISC) of ISCs according to L3/L2 protocol connection of the request; see col. 4, line 5 to col. 5, line 65),

forwarding the packet (see FIG. 1, forward the packets to a combined system of CXP 127 and DMA 135) if the number of packets forwarded from the selected class (see FIG. 1, when the number of packets from the ISC class) in a predetermined time interval (see FIG. 1, 4A, 5, within watermark traffic rate/time or threshold ICR rate/time; note that rate is defined as number/time packets per time, and thus when comparing to watermark rate); see col. 3, line 30 to col. 5, line 65) has not reached a first maximum count (see FIG. 1, 4A, S 411; FIG. 5, S 507 with No; see col. 3, line 30 to col. 5, line 65; forwarding the packets when the number of packets within the of the watermark traffic time/rate rate or threshold ICR time/rate has not exceed);

dropping the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 1, 4A, S 409; FIG. 5, S 509; see col. 3, line 30 to col. 5, line 65; drop the packets when the number/count of packets within the watermark traffic time/rate rate or threshold ICR time/rate has not exceed).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “assign the packet to a selected one of a plurality of classes” and “forwarded from the selected class" as taught by Archilles in the system of Barach, so that it would provide stable operation, service differentiation, and superior reliability as suggested by Archilles; see Archilles col. 1, line 65 to col. 2, line 10.

Regarding Claim 17, Barach discloses an apparatus (see FIG. 1, 2, Intermediate network node 200) for managing connections in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

a control plane (see FIG. 2, a control plane includes entities used to manage/control operation of the node (e.g. a combined system of logic 220, route processor 270, RP module 260, system controller 280)) operative to process requests for protocol-based connection (see FIG. 2, processes requests (i.e. PPPoE Active Discovery Initiation (PADI) and Incoming Call Request (ICRQ)) for routing/forwarding for PPPoE/L2TP protocol based connection; see col. 2, line 4-24; see col. 5, line 29-64; see col. 6, line 20-30); and

a data plane (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) operative to:

receive a request packet for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45),

forward the request packet to the control plane (see FIG. 2, forward PADI/ICRQ request packet/PDU to the control plane; see FIG. 6, Step 630, 640) to if the number of packets forwarded in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67);

drop the packet if the number of packets forwarded in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Barach does not explicitly disclose “assign the packet to a selected one of a plurality of classes” and “forwarded from the selected class".

However, Archilles discloses an apparatus or system (see FIG. 1, L3 apparatus) processing a method (see FIG. 4a,5, method) for managing connections in a network (see FIG. 1, control/managing routing/forwarding in a computer network; see col. 1, line 20-30; see col. 2, line 65-67) comprising:

a control plane (see FIG. 1, a combined system of Router Switch processor CXP 127 and DMA controller 135) operative to process requests for protocol-based connection (see FIG. 1,

processes packets that request for routing/forwarding for Layer 3 protocol (L3) connection; see col. 3, line 1-30); and

a data plane (see FIG. 1, a combined system of packet Rx 113, descriptor 115, buffer memory 119, output queue selection 113, and outbound queue 107) operative to:

receive a packet for establishing a protocol-based connection (see FIG. 1, receiving packet that request for routing/forwarding for L3 connection; see col. 3, line 1-30),

assign the packet to a selected one of a plurality of classes based upon a protocol of the request (see FIG. 1, classifying each packet to one internal service classes (ISC) of ISCs according to L3/L2 protocol connection of the request; see col. 4, line 5 to col. 5, line 65),

forward the packet to the control plane (see FIG. 1, forward the packets to a combined system of CXP 127 and DMA 135) to if the number of packets forwarded from the selected class (see FIG. 1, when the number of packets from the ISC class) in a predetermined time interval (see FIG. 1, 4A, 5, within watermark traffic rate/time or threshold ICR rate/time; note that rate is defined as number/time packets per time, and thus when comparing to watermark rate); see col. 3, line 30 to col. 5, line 65) has not reached a first maximum count (see FIG. 1, 4A, S 411; FIG. 5, S 507 with No; see col. 3, line 30 to col. 5, line 65; forwarding the packets when the number of packets within the of the watermark traffic time/rate rate or threshold ICR time/rate has not exceed);

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 1, 4A, S 409; FIG. 5, S 509; see col. 3, line 30 to col. 5, line 65; drop the packets when the number/count of packets within the watermark traffic time/rate rate or threshold ICR time/rate has not exceed).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "assign the packet to a selected one of a plurality of classes" and "forwarded from the selected class" as taught by Archilles in the system of Barach, so that it would provide stable operation, service differentiation, and superior reliability as suggested by Archilles; see Archilles col. 1, line 65 to col. 2, line 10.

Regarding Claim 33, Barach discloses a system (see FIG. 1, 2, Intermediate network node 200) for managing connections in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

means for receiving (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) a request packet associated for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45);

means for forwarding (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) the request packet if number of packets forwarded from the selected class in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67); and

means for dropping (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) the packet if number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

However, Archilles discloses an apparatus or system (see FIG. 1, L3 apparatus) processing a method (see FIG. 4a,5, method) for managing connections in a network (see FIG. 1, control/managing routing/forwarding in a computer network; see col. 1, line 20-30; see col. 2, line 65-67) comprising:

means for receiving (see FIG. 1, a combined system of packet Rx 113, descriptor 115, buffer memory 119, output queue selection 113, and outbound queue 107) a packet for establishing a protocol-based connection (see FIG. 1, receiving packet that request for routing/forwarding for L3 connection; see col. 3, line 1-30),

means for assigning (see FIG. 1, a combined system of packet Rx 113, descriptor 115, buffer memory 119, output queue selection 113, and outbound queue 107) the packet to a selected one of a plurality of classes based upon a protocol of the request (see FIG. 1, classifying each packet to one internal service classes (ISC) of ISCs according to L3/L2 protocol connection of the request; see col. 4, line 5 to col. 5, line 65),

means for forwarding (see FIG. 1, a combined system of packet Rx 113, descriptor 115, buffer memory 119, output queue selection 113, and outbound queue 107) the packet to the

control plane (see FIG. 1, forward the packets to a combined system of CXP 127 and DMA 135) to if the number of packets forwarded from the selected class (see FIG. 1, when the number of packets from the ISC class) in a predetermined time interval (see FIG. 1, 4A, 5, within watermark traffic rate/time or threshold ICR rate/time; note that rate is defined as number/time packets per time, and thus when comparing to watermark rate); see col. 3, line 30 to col. 5, line 65) has not reached a first maximum count (see FIG. 1, 4A, S 411; FIG. 5, S 507 with No; see col. 3, line 30 to col. 5, line 65; forwarding the packets when the number of packets within the of the watermark traffic time/rate rate or threshold ICR time/rate has not exceed);

means for dropping (see FIG. 1, a combined system of packet Rx 113, descriptor 115, buffer memory 119, output queue selection 113, and outbound queue 107) the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 1, 4A, S 409; FIG. 5, S 509; see col. 3, line 30 to col. 5, line 65; drop the packets when the number/count of packets within the watermark traffic time/rate rate or threshold ICR time/rate has not exceed).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “assign the packet to a selected one of a plurality of classes” and “forwarded from the selected class" as taught by Archilles in the system of Barach, so that it would provide stable operation, service differentiation, and superior reliability as suggested by Archilles; see Archilles col. 1, line 65 to col. 2, line 10.

7. Claims 1, 3, 4, 13-15, 17, 19, 20, 29, 30, 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson (US006577596B1) in view of Barach.

Regarding Claim 1, Olsson discloses a method (see FIG. 2, node 200, see FIG. 3, node 300, or see FIG. 6, node 600 processing the steps/methods) for managing connections in a network (see FIG. 2, 3, 6, control routing/forwarding in a exemplary PPP/IP network; see col. 5, line 66 to col. 6, line 10; see col. 7, line 46-67) comprising:

receiving a packet for establishing a protocol-based connection (see FIG. 2, receiving packet 211/212/213 at node 200/300/600 for PPP/IP connection; see FIG. 3, receiving Packet 315-318 at node 200/300/600 for PPP/IP for setting-up connection; see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49),

assign the packet to a selected one of a plurality of classes based upon a protocol of the connection (see FIG. 2, 3, 6, different QoS classification queues D1-D4, or D1.D_N, where D1 is for high QoS classification packets, and D_N is lower QoS classification packets according to PPP/IP protocol of the connection; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50),

forward the packet to the control plane (see FIG. 6, forward the packets from D_N queues to data link layer/plane 530) to if the number of packets forwarded from the selected class (see FIG. 6, when packets each D1.D_N QoS class) in a predetermined time interval (see FIG. 2,3,6, within scheduled/allocated time; see col. 6, line 60-65; see col. 8, line 27-30,44-65; see col. 9, line 17-42; see col. 10, line 30-40) has not reached a first maximum count (see FIG. 2,3,6, the size of queue; see col. 11, line 44-46; forwarding the packets when the specific QoS class queue D_N is yet filled with packets);

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 2,3,6, discarding the

packets when the specific QoS class queue D_N in the scheduled/allocated time is full (i.e. reaching maximum packet number/count); see col. 11, line 35-55).

Olsson does not explicitly disclose “a request packet” and “a protocol of the requested connection”.

Barach discloses a method for managing connections (see FIG. 1, 2, methods FIG. 6, Intermediate network node 200 processing/performing the steps/method controlling/managing routing/forwarding connections/sessions) in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

receiving a request packet associated for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45);

forwarding the request packet if number of packets forwarded from the selected class in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67); and

dropping the packet if number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a request packet” and “a protocol of the requested connection” as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 3, Olsson discloses wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see col. 9, line 1-2; col. 12, line 30-40; scheduling time is adaptable to rate control of packet forwarding from a specific QoS class).

Regarding Claim 4, Olsson discloses associated with the selected class is used to determine whether number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see col. 6, line 60-65; see col. 8, line 27-30, 44-65; see col. 9, line 17-42; see col. 10, line 30-4; scheduling means determines the specific QoS class queue in the scheduled time/interval is full/reach maximum count).

Olsson does not explicitly disclose “a counter”.

Barach discloses a counter (see FIG. 2, counter 296; see col. 6, line 1-10) associated with the type of resource is used to determine whether the number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; a counter 296 associated with the type of recourse is used to determine when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "a request packet" and "a protocol of the requested connection" as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 13, Olsson discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (PPP) (see FIG. 6, PPP 620; see col. 7, line 35-40,60-67; see col. 8, line 60-65; PPP connection). Barach also discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (PPP) (see col. 1, line 35-50, 65; see col. 2, line 5-20; see col. 5, line 60-65; PPP connection).

Regarding Claim 14, Olsson discloses the protocol-based connection as set forth above in claim 1.

Olsson does not explicitly disclose "Point-to-Point Protocol over Ethernet (PPPoE)".

However, utilizing PPPoE is so well known in the art. In particular, Barach teaches wherein the protocol-based connection is based on a Point-to-Point Protocol over Ethernet (PPPoE) (see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45; PPPoE request (PADI) request packet/PDU for establishing PPPoE protocol based connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "PPPoE", as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 15, Olsson discloses the protocol-based connection is based on a protocol of the connection as set forth above.

Olsson does not explicitly disclose “a Layer Two Tunneling Protocol (L2TP)”.

Barach discloses wherein the protocol-based connection is based on a Layer Two Tunneling Protocol (L2TP) (see col. 1, line 35-50, 65; see col. 2, line 5-20; see col. 5, line 60-65; layer 2 forwarding tunnels protocol (L2LP)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a Layer Two Tunneling Protocol (L2TP)” as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 17, Olsson discloses an apparatus (see FIG. 2, node 200, see FIG. 3, node 300, or see FIG. 6, node 600) for managing connections in a network (see FIG. 2,3,6, control routing/forwarding in a exemplary PPP/IP network; see col. 5, line 66 to col. 6, line 10; see col. 7, line 46-67) comprising:

a control plane (see FIG. 2,3,6, processor means 231, or 530; see col. 6, line 65 to col. 7, line 16, 30-34) operable to process protocol-based connection (see FIG. 6, PPP 620 or HDLC 530, processor processes PPP/HDLC connection packets; see col. 7, line 35-40,60-67; see col. 8, line 60-65); and

a data plane (see FIG. 2-3, a combined system of network layer/plane 210 and data link layer/plane 220/310, or FIG. 6, a combined system of IP layer layer/plane 610, PPP layer/plane 620 and HDLC layer/plane) operative to:

receive a packet for establishing a protocol-based connection (see FIG. 2, receiving packet 211/212/213 at node 200/300/600 for PPP/IP connection; see FIG. 3, receiving Packet 315-318 at node 200/300/600 for PPP/IP for setting-up connection; see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49),

assign the packet to a selected one of a plurality of classes based upon a protocol of the connection (see FIG. 2, 3, 6, different QoS classification queues D1-D4, or D1.D_N, where D1 is for high QoS classification packets, and D_N is lower QoS classification packets according to PPP/IP protocol of the connection; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50),

forward the packet to the control plane (see FIG. 6, forward the packets from D_N queues to data link layer/plane 530) to if the number of packets forwarded from the selected class (see FIG. 6, when packets each D1.D_N QoS class) in a predetermined time interval (see FIG. 2,3,6, within scheduled/allocated time; see col. 6, line 60-65; see col. 8, line 27-30,44-65; see col. 9, line 17-42; see col. 10, line 30-40) has not reached a first maximum count (see FIG. 2,3,6, the size of queue; see col. 11, line 44-46; forwarding the packets when the specific QoS class queue D_N is yet filled with packets);

drop the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 2,3,6, discarding the packets when the specific QoS class queue D_N in the scheduled/allocated time is full (i.e. reaching maximum packet number/count); see col. 11, line 35-55).

Olsson does not explicitly disclose “a request packet” and “a protocol of the requested connection”.

However, Barach discloses an apparatus (see FIG. 1, 2, Intermediate network node 200) for managing connections in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

a control plane (see FIG. 2, a control plane includes entities used to manage/control operation of the node (e.g. a combined system of logic 220, route processor 270, RP module 260, system controller 280)) operative to process requests for protocol-based connection (see FIG. 2, processes requests (i.e. PPPoE Active Discovery Initiation (PADI) and Incoming Call Request (ICRQ)) for routing/forwarding for PPPoE/L2TP protocol based connection; see col. 2, line 4-24; see col. 5, line 29-64; see col. 6, line 20-30); and

a data plane (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) operative to:

receive a request packet for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45),

forward the request packet to the control plane (see FIG. 2, forward PADI/ICRQ request packet/PDU to the control plane; see FIG. 6, Step 630, 640) to if the number of packets forwarded in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67);

drop the packet if the number of packets forwarded in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a request packet” and “a protocol of the requested connection” as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 19, Olsson discloses wherein the predetermined time interval is adjustable to effectuate different rates of packet forwarding for the selected class (see col. 9, line 1-2; col. 12, line 30-40; scheduling time is adaptable to rate control of packet forwarding from a specific QoS class).

Regarding Claim 20, Olsson discloses associated with the selected class is used to determine whether number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see col. 6, line 60-65; see col. 8, line 27-30, 44-65; see col. 9, line 17-42; see col. 10, line 30-4; scheduling means determines the specific QoS class queue in the scheduled time/interval is full/reach maximum count).

Olsson does not explicitly disclose “a counter”.

Barach discloses a counter (see FIG. 2, counter 296; see col. 6, line 1-10) associated with the type of resource is used to determine whether the number of packets forwarded from the class

in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; a counter 296 associated with the type of recourse is used to determine when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a request packet” and “a protocol of the requested connection” as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 29, Olsson discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (PPP) (see FIG. 6, PPP 620; see col. 7, line 35-40,60-67; see col. 8, line 60-65; PPP connection). Barach also discloses wherein the protocol-based connection is based on a Point-to-Point Protocol (PPP) (see col. 1, line 35-50, 65; see col. 2, line 5-20; see col. 5, line 60-65; PPP connection).

Regarding Claim 30, Olsson discloses the protocol-based connection as set forth above in claim 11.

Olsson does not explicitly disclose “Point-to-Point Protocol over Ethernet (PPPoE)”.

However, utilizing PPPoE is so well known in the art. In particular, Barach teaches wherein the protocol-based connection is based on a Point-to-Point Protocol over Ethernet (PPPoE) (see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45; PPPoE request (PADI) request packet/PDU for establishing PPPoE protocol based connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “PPPoE”, as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 31, Olsson discloses the protocol-based connection is based on a protocol of the connection as set forth above.

Olsson does not explicitly disclose “a Layer Two Tunneling Protocol (L2TP)”.

Barach discloses wherein the protocol-based connection is based on a Layer Two Tunneling Protocol (L2TP) (see col. 1, line 35-50, 65; see col. 2, line 5-20; see col. 5, line 60-65; layer 2 forwarding tunnels protocol (L2LP)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a Layer Two Tunneling Protocol (L2TP)” as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

Regarding Claim 33, Olsson discloses a system (see FIG. 2, node 200, see FIG. 3, node 300, or see FIG. 6, node 600) for managing connections in a network (see FIG. 2,3,6, control routing/forwarding in a exemplary PPP/IP network; see col. 5, line 66 to col. 6, line 10; see col. 7, line 46-67) comprising:

means for receiving (see FIG. 2-3, a combined system of network layer/plane 210 and data link layer/plane 220/310, or FIG. 6, a combined system of IP layer layer/plane 610, PPP

layer/plane 620 and HDLC layer/plane) a packet for establishing a protocol-based connection (see FIG. 2, receiving packet 211/212/213 at node 200/300/600 for PPP/IP connection; see FIG. 3, receiving Packet 315-318 at node 200/300/600 for PPP/IP for setting-up connection; see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49),

means for assigning (see FIG. 2-3, a combined system of network layer/plane 210 and data link layer/plane 220/310, or FIG. 6, a combined system of IP layer layer/plane 610, PPP layer/plane 620 and HDLC layer/plane) the packet to a selected one of a plurality of classes based upon a protocol of the connection (see FIG. 2, 3, 6, different QoS classification queues D1-D4, or D1.D_N, where D1 is for high QoS classification packets, and D_N is lower QoS classification packets according to PPP/IP protocol of the connection; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50),

means for forwarding (see FIG. 2-3, a combined system of network layer/plane 210 and data link layer/plane 220/310, or FIG. 6, a combined system of IP layer layer/plane 610, PPP layer/plane 620 and HDLC layer/plane) the packet to the control plane (see FIG. 6, forward the packets from D_N queues to data link layer/plane 530) to if the number of packets forwarded from the selected class (see FIG. 6, when packets each D1.D_N QoS class) in a predetermined time interval (see FIG. 2,3,6, within scheduled/allocated time; see col. 6, line 60-65; see col. 8, line 27-30,44-65; see col. 9, line 17-42; see col. 10, line 30-40) has not reached a first maximum count (see FIG. 2,3,6, the size of queue; see col. 11, line 44-46; forwarding the packets when the specific QoS class queue D_N is yet filled with packets);

means for dropping (see FIG. 2-3, a combined system of network layer/plane 210 and data link layer/plane 220/310, or FIG. 6, a combined system of IP layer layer/plane 610, PPP

layer/plane 620 and HDLC layer/plane) the packet if the number of packets forwarded from the selected class in the predetermined time interval has reached the first maximum count (see FIG. 2,3,6, discarding the packets when the specific QoS class queue D_N in the scheduled/allocated time is full (i.e. reaching maximum packet number/count); see col. 11, line 35-55).

Olsson does not explicitly disclose “a request packet” and “a protocol of the requested connection”.

Barach discloses a system (see FIG. 1, 2, Intermediate network node 200) for managing connections in a network (see FIG. 1, 2, control/managing routing/forwarding in a network 100; see col. 4, line 46 to col. 5, line 15) comprising:

means for receiving (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) a request packet associated for establishing a protocol-based connection (see FIG. 2, see FIG. 6, Step 610; receiving PADI/ICRQ request packet/PDU for establishing PPPoE/L2TP protocol based connection; see col. 5, line 28-46; see col. 6, line 20-30; see col. 8, line 35-45);

means for forwarding (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) the request packet if number of packets forwarded from the selected class in a predetermined time interval (see FIG. 3, 4, FIG. 6, step 630, 640, when the number/count packets sent in predetermined time/clock interval) has not reached a first maximum count (see FIG. 3, FIG. 6, step 630, 640; is within the maximum/allowable predetermine number of time/clock); see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67); and

means for dropping (see FIG. 2, a data plane includes components used to retrieve data packets (e.g. a combined system of line cards 210, links 212, forwarding engine 250, FP module 230, buffer 240)) the packet if number of packets forwarded from the class in the predetermined time interval has reached the first maximum count (see FIG. 3, 4; FIG. 6, step 650, 660; drop the PADI/ICRQ request packet/PDU when the number/count of packets sent is greater than the allowable/acceptable predetermine time/clock interval; see col. 6, line 36 to col. 7, line 65; see col. 8, line 35-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "a request packet" and "a protocol of the requested connection" as taught by Barach in the system of Olsson, so that it would provide more efficiently utilization of network resources which decreasing its latency of establishing a large number of new communication session as suggested by Barach; see Barach col. 3, line 1-30.

8. Claims 2 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach, and further in view of Kroll (US006700895B1)

Regarding Claim 2, Olsson discloses wherein the first maximum count effectuates different rates of packet forwarding for the selected class (see FIG. 2,3,6, the size of each specific QoS class queue D_N effects/results different rates for forwarding high and low QoS classes of packets; see col. 11, line 44-46).

Neither Olsson nor Barach explicitly discloses "adjustable".

However, adjusting queues or buffer size/length for different rates is so well known in the art. In particular, Kroll teaches wherein the first maximum count is adjustable to effectuate

different rates of packet forwarding (see FIG. 6, S194, 196; the buffer size is increased/adjusted to accommodate/effects more counts of packet so that more/higher data rate with desired loss rate can be processed; see col. 7, line 10-24).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide adjustable first maximum count, as taught by Kroll in the combined system of Olsson and Barach, so that it would provide an optimal buffer size; see Kroll col. 2, line 30-55.

Regarding Claim 18, Olsson discloses wherein the first maximum count effectuates different rates of packet forwarding for the selected class (see FIG. 2,3,6, the size of each specific QoS class queue D_N effects/results different rates for forwarding high and low QoS classes of packets; see col. 11, line 44-46).

Neither Olsson nor Barach explicitly discloses “adjustable”.

However, adjusting queues or buffer size/length for different rates is so well known in the art. In particular, Kroll teaches wherein the first maximum count is adjustable to effectuate different rates of packet forwarding (see FIG. 6, S194, 196; the buffer size is increased/adjusted to accommodate/effects more counts of packet so that more/higher data rate with desired loss rate can be processed; see col. 7, line 10-24).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide adjustable first maximum count, as taught by Kroll in the combined system of Olsson and Barach, so that it would provide an optimal buffer size; see Kroll col. 2, line 30-55.

9. Claim 5 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach as applied to claim 1 and 17 above, and further in view of Kim (US005859846A).

Regarding Claim 5, the combined system of Olsson and Barach discloses the counter as set forth above in claim 1.

Neither Olsson nor Barach explicitly discloses “a count-down” counter.

However, having a count-down counter for the buffer or queue is so well known in the art. In particular, Kim discloses a counter (see FIG. 5, UP/Down counter 27) associated with the selected class (see FIG. 5, Shared buffer 28) is used to determine whether number of packets forwarded from the selected class has reached the first maximum count (see col. 13, line 21-45; a counter associated with a shared buffer is used to determined whether the number of cells forwarded from the buffer (i.e. determining full/maximum number of cells in the buffer)), wherein the counter is a count-down counter (see FIG. 5, Down counter 27; see col. 13, line 21-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “a count-down counter”, as taught by Kim, in the combined system of Olsson and Barach, so that it would count the number of cells stored/output from the buffer; see Kim col. 16, line 22-27.

Regarding Claim 21, the combined system of Olsson and Barach discloses the counter as set forth above in claim 17.

Neither Olsson nor Barach explicitly discloses “a count-down” counter.

However, having a count-down counter for the buffer or queue is so well known in the art. In particular, Kim discloses a counter (see FIG. 5, UP/Down counter 27) associated with the selected class (see FIG. 5, Shared buffer 28) is used to determine whether number of packets forwarded from the selected class has reached the first maximum count (see col. 13, line 21-45; a counter associated with a shared buffer is used to determined whether the number of cells forwarded from the buffer (i.e. determining full/maximum number of cells in the buffer)), wherein the counter is a count-down counter (see FIG. 5, Down counter 27; see col. 13, line 21-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "a count-down counter", as taught by Kim, in the combined system of Olsson and Barach, so that it would count the number of cells stored/output from the buffer; see Kim col. 16, line 22-27.

10. Claim 6, 8, 9, 22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach as applied to claim 1 and 17 above, and further in view of Choudhury (US006092115A).

Regarding Claim 6, the combined system of Olsson and Barach discloses wherein the request packet is forwarded only if a count of active connection requests has not reached a maximum limit as set forth above in claim 1 and 17.

Neither Olsson nor Barach explicitly discloses "a second maximum limit".

However, buffer or queue having an overflow bandwidth or borrowed space having another/second size/threshold to accommodate the extra packets is so well known in the art.

Choudhury discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 2, the packet is forward when a count/number of active packets has not reach the limit/size/threshold of underutilized queue 30c; see col. 4, line 1-15.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second maximum limit, as taught by Choudhury, in the combined system of Olsson and Barach, so that it would provide fair queuing schemes; see Choudhury col. 2, line 44-60.

Regarding Claim 8, Olsson discloses the count of active connection is decremented upon the protocol-based connection (see FIG. 6, when number/count of active packets is forwarded from the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is decreased/decremented; see col. 11, line 44-46).

Olsson does explicitly disclose “requests”.

However, Barach discloses the count of active connection requests for establishment a protocol-based connection (see col. 6, line 1 to col. 8, line 35; number/counts of connection requests for establishing of PPPoE/L2TP connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “requests”, as taught by Barach, in the system of Olsson, for the same motivation as set forth above in claim 1.

Regarding Claim 9, Olsson discloses the count of active connection is decremented upon the protocol-based connection (see FIG. 6, when number/count of active packets is

forwarded from the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is decreased/decremented; see col. 11, line 44-46).

Olsson does explicitly disclose “requests”.

However, Barach discloses the count of active connection requests when a protocol-based connection is terminated before being established (see col. 6, line 1 to col. 8, line 35; number/count of connection requests and termination/disconnection before establishing PPPoE/L2TP connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “termination/disconnection before establishing the connection”, as taught by Barach, in the system of Olsson, for the same motivation as set forth above in claim 1.

In addition, Choudhury also discloses the count of active connection packets are decremented in the queue due to forwarding packets when a connection is terminated (see col. 9, line 2-9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “termination/disconnection before establishing the connection”, as taught by Choudhury, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 1.

Regarding Claim 22, the combined system of Olsson and Barach discloses wherein the request packet is forwarded only if a count of active connection requests has not reached a maximum limit as set forth above in claim 1 and 17.

Neither Olsson nor Barach explicitly discloses “a second maximum limit”.

However, buffer or queue having an overflow bandwidth or borrowed space having another/second size/threshold to accommodate the extra packets is so well known in the art. Choudhury discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 2, the packet is forward when a count/number of active packets has not reach the limit/size/threshold of underutilized queue 30c; see col. 4, line 1-15.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second maximum limit, as taught by Choudhury, in the combined system of Olsson and Barach, so that it would provide fair queuing schemes; see Choudhury col. 2, line 44-60.

Regarding Claim 24, Olsson discloses the count of active connection is decremented upon the protocol-based connection (see FIG. 6, when number/count of active packets is forwarded from the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is decreased/decremented; see col. 11, line 44-46).

Olsson does explicitly disclose “requests”.

However, Barach discloses the count of active connection requests for establishment a protocol-based connection (see col. 6, line 1 to col. 8, line 35; sending connection requests for establishing connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “requests”, as taught by Barach, in the system of Olsson, for the same motivation as set forth above in claim 17.

Regarding Claim 25, Olsson discloses the count of active connection is decremented upon the protocol-based connection (see FIG. 6, when number/count of active packets is forwarded from the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is decreased/decremented; see col. 11, line 44-46).

Olsson does explicitly disclose “requests”.

However, Barach discloses the count of active connection requests when a protocol-based connection is terminated before being established (see col. 6, line 1 to col. 8, line 35; number/count of connection requests and termination/disconnection before establishing PPPoE/L2TP connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “termination/disconnection before establishing the connection”, as taught by Barach, in the system of Olsson, for the same motivation as set forth above in claim 17.

In addition, Choudhury also discloses the count of active connection packets are decremented in the queue due to forwarding packets when a connection is terminated (see col. 9, line 2-9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “termination/disconnection before establishing the connection”, as taught by Choudhury, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 17.

11. Claims 10-12 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach, and Choudhury and Valencia (US006754712B1).

Regarding Claim 10, Olsson discloses after forwarding the packet (see FIG. 2,3,6, after forwarding the packets from high priority queue D1), receiving an additional packet associated with the protocol-based connection (see FIG. 2,36, receiving another PPP connection packet (e.g. D4 or L packet); see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49);

assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and

forwarding the additional packet according to the first maximum count (see FIG. 2, 3, 6, forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Olsson does not explicitly disclose "request packet".

However, Barach discloses request packet as set forth above in claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "requests", as taught by Barach, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 1.

Neither Olsson, Barach, nor Choudhury explicitly disclose "requests and forwarding even if the first maximum count has been reached".

However, Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and the counter is not increment, while the counted non-

management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “requests and forwarding even if the first maximum count has been reached”, as taught by Valencia in the combined system of Olsson, Barach and Choudhury, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 11, the combined system of Olsson, Barach and Choudhury discloses the additional packet and the requested protocol-based connection as set forth above in claim 1, 6 and 10.

Neither Olsson, Barach, nor Choudhury explicitly disclose “relates to status” of the requested protocol-based connection".

However, Valencia discloses wherein the additional packet relates to status of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to status of PPP/L2F connection such as configuration, authentication, response, etc.).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “relates to status of the requested protocol-based connection”, as taught by Valencia in the combined system of Olsson, Barach and Choudhury, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 12, combined system of Olsson, Barach and Choudhury discloses the additional packet and the requested protocol-based connection as set forth above in claim 1, 6 and 10.

Neither Olsson, Barach, nor Choudhury explicitly disclose “relates to termination” of the requested protocol-based connection".

Valencia discloses wherein the additional packet relates to termination of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to disconnection/termination of PPP/L2F connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “relates to termination” of the requested protocol-based connection, as taught by Valencia in the combined system of Olsson, Barach, Choudhury so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 26, Olsson discloses after forwarding the packet (see FIG. 2,3,6, after forwarding the packets from high priority queue D1), receiving an additional packet associated with the protocol-based connection (see FIG. 2,36, receiving another PPP connection packet (e.g. D4 or L packet); see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49);

assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and

forwarding the additional packet according to the first maximum count (see FIG. 2, 3, 6, forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Olsson does not explicitly disclose "request packet".

However, Barach discloses request packet as set forth above in claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "requests", as taught by Barach, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 1.

Neither Olsson, Barach, nor Choudhury explicitly disclose "requests and forwarding even if the first maximum count has been reached".

However, Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and the counter is not increment, while the counted non-management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "requests and forwarding even if the first maximum count has been reached", as taught by Valencia in the combined system of Olsson, Barach and Choudhury, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 27, the combined system of Olsson, Barach and Choudhury discloses the additional packet and the requested protocol-based connection as set forth above in claim 11, 22 and 26.

Neither Olsson, Barach, nor Choudhury explicitly disclose “relates to status” of the requested protocol-based connection".

However, Valencia discloses wherein the additional packet relates to status of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to status of PPP/L2F connection such as configuration, authentication, response, etc.).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “relates to status of the requested protocol-based connection”, as taught by Valencia in the combined system of Olsson, Barach and Choudhury, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 28, combined system of Olsson, Barach and Choudhury discloses the additional packet and the requested protocol-based connection as set forth above in claim 11, 22 and 26.

Neither Olsson, Barach, nor Choudhury explicitly disclose “relates to termination” of the requested protocol-based connection".

Valencia discloses wherein the additional packet relates to termination of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to disconnection/termination of PPP/L2F connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "relates to termination" of the requested protocol-based connection, as taught by Valencia in the combined system of Olsson, Barach, Choudhury so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

12. Claim 6, 7, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach as applied to claim 1 and 17 above, and further in view of Suzuki (US005140584A).

Regarding Claim 6, Olsson discloses wherein the packet is forwarded only if a count of active connection has not reached a maximum limit as set forth above in claim 1 and 17. Valencia discloses a count of active connection requests (see col. 4, line 30-50; a number/count of PPP requests).

Neither Olsson nor Barach explicitly discloses "a second maximum limit".

However, buffer or queue having second maximum threshed/limit count is so well known in the art. Suzuki discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 3, comparing the packet according secondary Thresholds, Thr2-Thr4, before forwarding the packets; see col. 4, line 25-64; see col. 8, line 1-5,50-60).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second maximum limit, as taught by Suzuki, in the

combined system of Olsson and Barach, so that it would obtain a transmission quality which has high instantaneousness; see Suzuki col. 2, line 40-45.

Regarding Claim 7, Olsson discloses wherein the count of active connection is increment when the packet is forwarded to the selected class (see FIG. 6, when number/count of active packets is forwarded to the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is increment/increased; see col. 11, line 44-46).

Olsson does not explicitly disclose “request packet”.

However, Barach discloses request packet as set forth above in claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “requests”, as taught by Barach, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 1.

Further more, Suzuki further discloses the count of active connection packet is incremented when a packet is forwarded (see FIG. 3, counter 5 is incremented when a packet for a connection is forwarded; see col. 7, line 50-55).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “the count of active connection packet is incremented when the packet is forwarded”, as taught by Suzuki, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 6.

Regarding Claim 22, Olsson discloses wherein the packet is forwarded only if a count of active connection has not reached a maximum limit as set forth above in claim 1 and 17. Valencia discloses a count of active connection requests (see col. 4, line 30-50; a number/count of PPP requests).

Neither Olsson nor Barach explicitly discloses “a second maximum limit”.

However, buffer or queue having second maximum threshed/limit count is so well known in the art. Suzuki discloses wherein the packet is forwarded only if a count of active connection packets has not reached a second maximum limit (see FIG. 3, comparing the packet according secondary Thresholds, Thr2-Thr4, before forwarding the packets; see col. 4, line 25-64; see col. 8, line 1-5,50-60).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a second maximum limit, as taught by Suzuki, in the combined system of Olsson and Barach, so that it would obtain a transmission quality which has high instantaneousness; see Suzuki col. 2, line 40-45.

Regarding Claim 23, Olsson discloses wherein the count of active connection is increment when the packet is forwarded to the selected class (see FIG. 6, when number/count of active packets is forwarded to the o D_N queues upon a PPP/HDLC connation, the number/count of packets in the queue is increment/increased; see col. 11, line 44-46).

Olsson does not explicitly disclose “request packet”.

However, Barach discloses request packet as set forth above in claim 17.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “requests”, as taught by Barach, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 17.

Further more, Suzuki further discloses the count of active connection packet is incremented when a packet is forwarded (see FIG. 3, counter 5 is incremented when a packet for a connection is forwarded; see col. 7, line 50-55).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "the count of active connection packet is incremented when the packet is forwarded", as taught by Suzuki, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 22

13. Claims 10-12 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach, and Suzuki and Valencia (US006754712B1).

Regarding Claim 10, Olsson discloses after forwarding the packet (see FIG. 2,3,6, after forwarding the packets from high priority queue D1), receiving an additional packet associated with the protocol-based connection (see FIG. 2,36, receiving another PPP connection packet (e.g. D4 or L packet); see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49);

assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and

forwarding the additional packet according to the first maximum count (see FIG. 2, 3, 6, forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Olsson does not explicitly disclose "request packet".

However, Barach discloses request packet as set forth above in claim 1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "requests", as taught by Barach, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 1.

Neither Olsson, Barach nor Suzuki discloses “forwarding even if the first maximum count has been reached”.

However, Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and the counter is not increment, while the counted non-management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “forwarding even if the first maximum count has been reached”, as taught by Valencia in the combined system of Olsson, Barach and Suzuki, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 11, the combined system of Olsson, Barach and Suzuki discloses the additional packet and the requested protocol-based connection as set forth above in claim 1, 6 and 10.

Neither Olsson, Barach, nor Suzuki explicitly disclose “relates to status” of the requested protocol-based connection".

However, Valencia discloses wherein the additional packet relates to status of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to status of PPP/L2F connection such as configuration, authentication, response, etc.).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “relates to status of the requested protocol-based connection”, as taught by Valencia in the combined system of Olsson, Barach and Suzuki, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 12, combined system of Olsson, Barach and Suzuki discloses the additional packet and the requested protocol-based connection as set forth above in claim 1, 6 and 10.

Neither Olsson, Barach, nor Suzuki explicitly disclose “relates to termination” of the requested protocol-based connection".

Valencia discloses wherein the additional packet relates to termination of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to disconnection/termination of PPP/L2F connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “relates to termination” of the requested protocol-based connection, as taught by Valencia in the combined system of Olsson, Barach, Suzuki so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 26, Olsson discloses after forwarding the packet (see FIG. 2,3,6, after forwarding the packets from high priority queue D1), receiving an additional packet associated with the protocol-based connection (see FIG. 2,36, receiving another PPP connection packet (e.g. D4 or L packet); see col. 6, line 63 to col. 7, line 16,25-45; see col. 11, line 45-49);

assigning the additional packet to a pass-through class (see FIG.2, 3,6, assigning lower priority packets (e.g. D4 or L packet) to D4 or Lower priority queue; see col. 6, line 64 to col. 7, line 35; see col. 8, line 17-23, 60-65; see col. 9, line 44-45; see col. 11, line 43-50); and

forwarding the additional packet according to the first maximum count (see FIG. 2, 3, 6, forwarding the packet according to the size/fill-level/counts of packets in the queue; see col. 11, line 44-46).

Olsson does not explicitly disclose “request packet”.

However, Barach discloses request packet as set forth above in claim 11.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “requests”, as taught by Barach, in the combined system of Olsson and Barach, for the same motivation as set forth above in claim 11.

Neither Olsson, Barach nor Suzuki discloses “forwarding even if the first maximum count has been reached”.

However, Valencia further discloses forwarding the additional packet even if the first maximum count has been reached (see col. 8, line 20-55; see col. 10, line 5-15; forwarding of management packets with sequence 0 and the counter is not increment, while the counted non-management packets are discarded. Thus it is clear that the management packets are sent even if the buffer/queue/resources/sequences reach its threshold/limit for non-management packets).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “forwarding even if the first maximum count has been reached”, as taught by Valencia in the combined system of Olsson, Barach and Suzuki, so that it

would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 27, the combined system of Olsson, Barach and Suzuki discloses the additional packet and the requested protocol-based connection as set forth above in claim 11, 22 and 26.

Neither Olsson, Barach, nor Suzuki explicitly disclose “relates to status” of the requested protocol-based connection".

However, Valencia discloses wherein the additional packet relates to status of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to status of PPP/L2F connection such as configuration, authentication, response, etc.).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “relates to status of the requested protocol-based connection”, as taught by Valencia in the combined system of Olsson, Barach and Suzuki, so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

Regarding Claim 28, combined system of Olsson, Barach and Suzuki discloses the additional packet and the requested protocol-based connection as set forth above in claim 11, 22 and 26.

Neither Olsson, Barach, nor Suzuki explicitly disclose “relates to termination” of the requested protocol-based connection".

Valencia discloses wherein the additional packet relates to termination of the requested protocol-based connection (see col. 8, line 20-55; see col. 10, line 5-15; see col. 11, line 40-55; the management packets relates to disconnection/termination of PPP/L2F connection).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "relates to termination" of the requested protocol-based connection, as taught by Valencia in the combined system of Olsson, Barach, Suzuki so that it would provide layer two forwarding protocol with virtual dialup service and maintain security; see Valencia col. 1, line 65 to col. 2, line 37.

14. Claims 16 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Barach as applied to claims 1 and 17 above, and further in view of Xiong (US006958996B2)

Regarding Claim 16, the combined system of Olsson and Barach discloses wherein the protocol-based connection as set forth above in claim 1.

Neither Olsson nor Barach explicitly discloses a Dynamic Host Configuration Protocol (DHCP).

However, utilizing DHCP is so well known in the art. In particular, Xiong teaches wherein the protocol-based connection is based on a Dynamic Host Configuration Protocol (DHCP) (see FIG. 6, DHCP request; see col. 2, line 40-60; see col. 5, line 10-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide DHCP, as taught by Xiong in the combined system of Olsson

and Barach, so that it would enable a client for communication with ISP over the internet by utilizing appropriate address; see Xiong col. 2, line 40-45.

Regarding Claim 32, the combined system of Olsson and Barach discloses wherein the protocol-based connection as set forth above in claim 17.

Neither Olsson nor Barach explicitly discloses a Dynamic Host Configuration Protocol (DHCP).

However, utilizing DHCP is so well known in the art. In particular, Xiong teaches wherein the protocol-based connection is based on a Dynamic Host Configuration Protocol (DHCP) (see FIG. 6, DHCP request; see col. 2, line 40-60; see col. 5, line 10-45).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide DHCP, as taught by Xiong in the combined system of Olsson and Barach, so that it would enable a client for communication with ISP over the internet by utilizing appropriate address; see Xiong col. 2, line 40-45.

Response to Arguments

15. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to IAN N. MOORE whose telephone number is (571)272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ian N. Moore
Primary Examiner
Art Unit 2616

/Ian N. Moore/
Primary Examiner, Art Unit 2616